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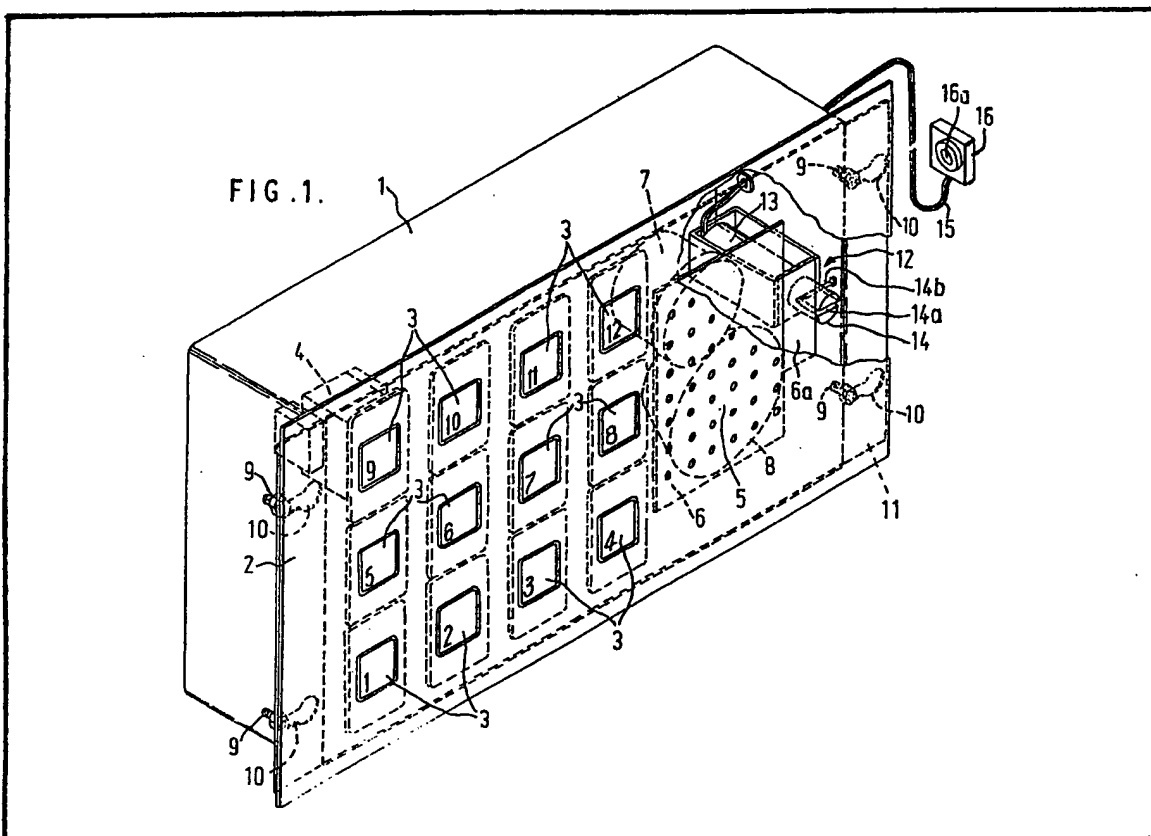
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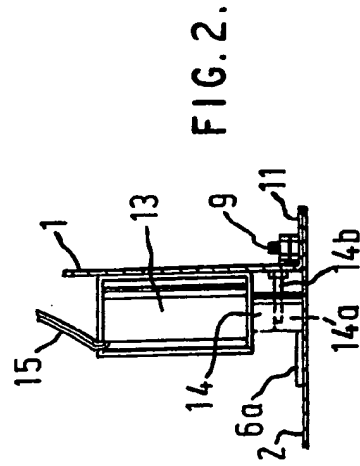
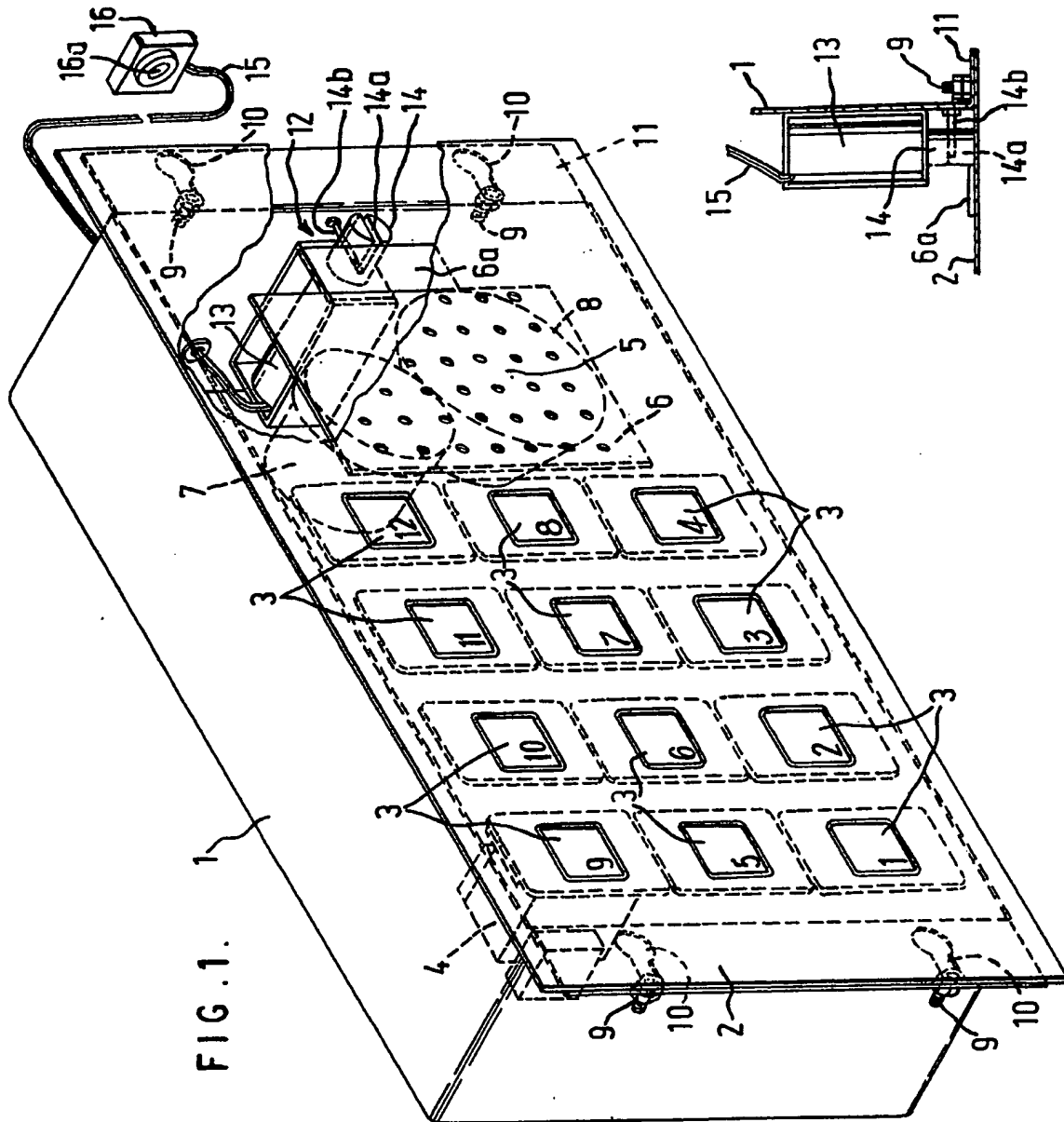
## (54) Vandal-resistant Control Box

(57) A vandal-resistant control box 1, flush-mounted in the wall of e.g. a block of flats (apartments) adjacent a main entrance thereto, is provided with a removable front panel 2; the means for securing the panel 2 to the box 1 being concealed, namely, studs 9 with enlarged heads projecting rearwardly from the panel 2 and

engaging in key-hole slots 10 in side flanges of the box 1. Removal of panel 2 is normally prevented by a spring-loaded armature 14 of a remote-controlled solenoid 13 being engaged by one edge of a lateral extension 6a of a metal plate 6 welded to the panel 2 behind an apertured voice-communication grill 5. The panel 2 has external buttons 3 to operate internal contact sets 4.



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## SPECIFICATION

## Vandal-resistant Control Box

This invention relates to a vandal-resistant control box comprising a front panel provided with externally accessible operating means for operating equipment inside the box.

Such a control box is often provided at a main entrance to a block of flats (i.e. apartments), the panel being provided with a series of pushbuttons, one per flat, to operate respective electrical contact sets inside the box for ringing doorbells of the respective flats. Such a control box usually has a grill for two-way voice communication as well. The box is usually embedded in a wall of the block of flats so that the panel is substantially flush with the wall. Although hopefully the control box will seldom require attention, it is obviously necessary to provide a facility to remove the panel should the need arise. However, experience shows that any visible means of inter-engaging the panel and the box becomes a target for vandals to attempt to destroy. Still further, the panel should give the appearance of being non-removable.

According to the present invention there is provided a vandal-resistant control box comprising a front panel provided with externally accessible operating means for operating equipment inside the box, the panel being removably inter-engaged with the box by means not visible from the front of the panel, characterised that the panel is removable by being moved across the front of the box from a normal position in which the panel is inter-engaged with the box to a release position in which the panel is disengaged from and can be removed from the box and in that an internal locking device inside the box is normally operative to prevent the panel from being moved across the front of the box from the normal position to the release position.

The invention will be described by way of example with reference to the accompanying drawings, wherein:

Figure 1 is a perspective view (partly cut away) of a control box embodying the invention; and

Figure 2 is a scrap view in section of part of the control box of Figure 1.

Referring to the drawings, the illustrated vandal-resistant control box 1 comprises a front panel 2 provided with twelve externally accessible operating buttons 3, numbered "1" to "12" for operating twelve corresponding electrical contact sets 4 (only one of which is shown) which are mounted on the panel 2 inside the box 1. To the right of the buttons 3 is an apertured grill 5 for voice communication purposes. A metal plate 6 is fixed, as by welding, to the inside surface of the panel 2 so as to cover the holes of the apertured grill 5, so as to prevent any damage from being caused by poking sharp objects through the holes of the grill. Mounted on the metal plate 6 and extending rearwardly therefrom inside the control

box 1 are a microphone 7 and a loudspeaker 8.

The panel 2 is removably inter-engaged with the box 1 by means not visible from the front of the panel 2. More particularly, the panel 2 is removable from the box 1 by being moved slidably across the front of the box 1 from a normal position (as shown) in which the panel 2 is inter-engaged with the box 1 to a release position (not shown) in which the panel 2 is disengaged from and can be removed from the box 1. More particularly, four metal studs 9 are welded to the rear of the panel 2 and project rearwardly therefrom, with enlarged heads to engage in key-hole-shaped slots 10 in side flanges 11 of the box 1.

An internal locking device 12 inside the box 1 is normally operative to prevent the panel 2 from being moved slidably as aforesaid across the front of the box 1 from the normal position to the release position. This locking device 12 takes the form of a solenoid 13 of which the longitudinally movable armature 14 is normally (that is, when the solenoid 13 is unenergized) biased by a compression spring (not shown) inside solenoid 13 towards the front of the control box 1 into abutment with the panel 2, where the armature 14 is engageable at one side thereof by an edge of a lateral extension 6a of the metal plate 6, thereby preventing the entire panel 2 from being moved from the position shown to a position in which the studs 9 are located in the widened portions of the key-hole-shaped slots 10 to enable the panel 2 to be removed. The front end of armature 14 is provided with a transverse slot 14a which slidably receives a stud 14b fixed to the side of the box 1, to prevent rotation of armature 14 and/or to perform a guiding function therefor. The solenoid 13 is connected by an electrical cable 15 of indeterminate length to a control button unit and source of energy 16, so that when the control button 16a is operated, the solenoid 13 becomes energized to withdraw the armature 14 rearwardly of the control box 1 out of the path of the lateral extension 6a of the metal plate 6, to enable the panel 2 to be moved (generally rightwardly in Figure 1) to a position in which the enlarged heads of the studs 9 are in the widened portions of the key-hole-shaped slots 10 in side flanges 11, enabling the panel 2 to be taken off the control box 1. After that, the panel 2 can be replaced by simply once again presenting the studs 9 to the key-hole-shaped slots 10 to pass the stud heads through the widened parts of the slots 9, causing the solenoid armature 14 to abut against the lateral extension 6a of the metal plate 6 which is fixed to the front panel 2. When the front panel 2 is moved slightly to the left, the extension 6a eventually slides out from beneath the armature 14, which is immediately moved forwardly by the solenoid spring to abut the front panel 2, so as to maintain the panel 2 in its leftward position as shown in Figure 1.

In use, the control box 1 is embedded in the wall of, for example, a block of flats (apartments) adjacent a main entrance of the block, with space

- behind the slots 10 to accommodate the studs 9 and allow the studs 9 to move from side to side between the normal and release positions. Each of the twelve electrical contact sets 4 is
- 5 electrically connected (by means not shown) to a respective one of the flats (apartments) each of which is equipped with a similar loudspeaker and microphone (not shown) connected electrically to the microphone 7 and loudspeaker 8 of the
- 10 control box so that voice communication can be established between an occupant of any one of the flats (apartments) summoned by operation of the respective button 3 and a person at the main door.
- 15 The control button unit and energy source 16 is installed somewhere inside the block of flats so that it can be operated by authorised personnel when required.

- The invention is not limited to the above-described embodiment. There are other situations besides blocks of flats or apartments where
- 20 vandal-resistant control boxes may be used, for example, such a box may be provided at an entrance to a block of offices to provide security against unauthorized entry and the buttons may
- 25 be connected to an electrical register for the entry of secret number codes without which entry is impossible but with which entry is automatic, such control boxes being in use already to some
- 30 extent. The solenoid need not be electrical, but may for example be pneumatic, although an electrical solenoid is preferred. Furthermore, there are other ways of inter-engaging the panel and

- the box besides key-hole-shaped slots and studs
- 35 with enlarged heads.

#### Claims

1. A vandal-resistant control box comprising a front panel provided with externally accessible operating means for operating equipment inside
- 40 the box, the panel being removably inter-engaged with the box by means not visible from the front of the panel, characterised that the panel is removable by being moved across the front of the box from a normal position in which the panel is
- 45 inter-engaged with the box to a release position in which the panel is disengaged from and can be removed from the box and in that an internal locking device inside the box is normally operative to prevent the panel from being moved across the
- 50 front of the box from the normal position to the release position.
2. A control box as claimed in claim 1 in which a plurality of studs are fixed to the rear of the control panel and project rearwardly therefrom
- 55 with enlarged heads to engage in key-hole-shaped slots in the box.
3. A control box as claimed in claim 2 in which the slots are in side flanges of the box.
4. A control box as claimed in any preceding
- 60 claim wherein the locking device comprises a spring-loaded bolt normally biased into engagement with a part of the panel at the rear of the panel.
5. A control box as claimed in claim 4 wherein
- 65 the bolt is releasable from the panel by means of a pneumatic or electrical solenoid.